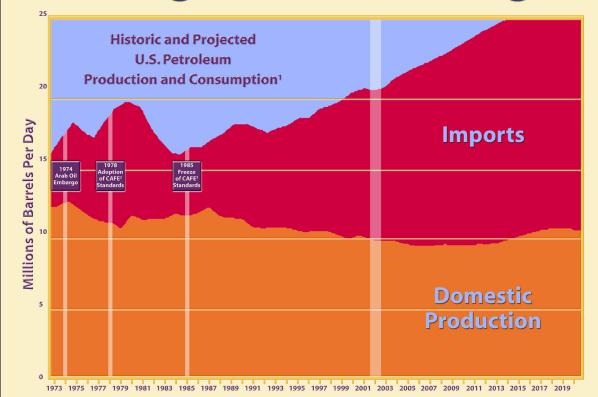
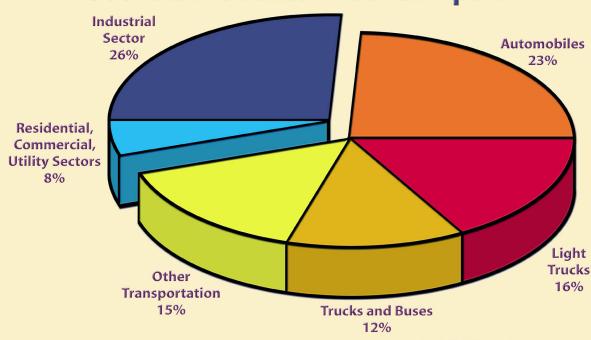
U.S. Dependence on Foreign Oil is Increasing



Transportation is the Primary Cause 1999 U.S. Petroleum Consumption

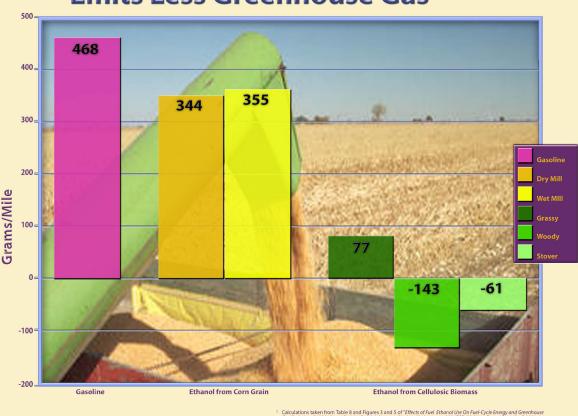


Bioethanol Production and Use

-Uses Less Petroleum

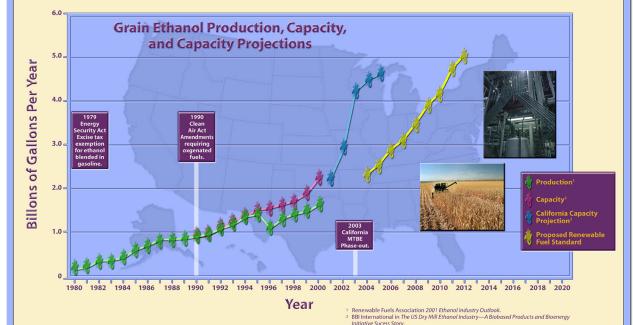


-Emits Less Greenhouse Gas'

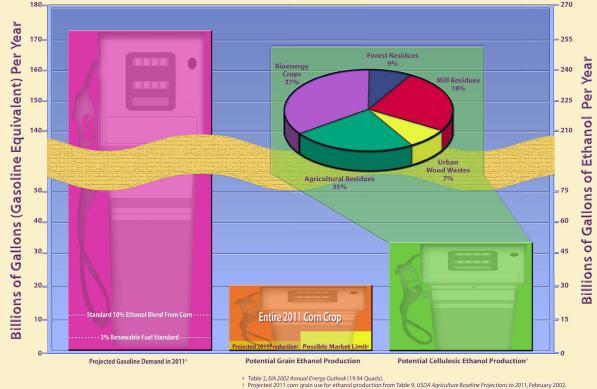


Note: includes electrical generation from burning lignin residue, making negative use or emissions possible.

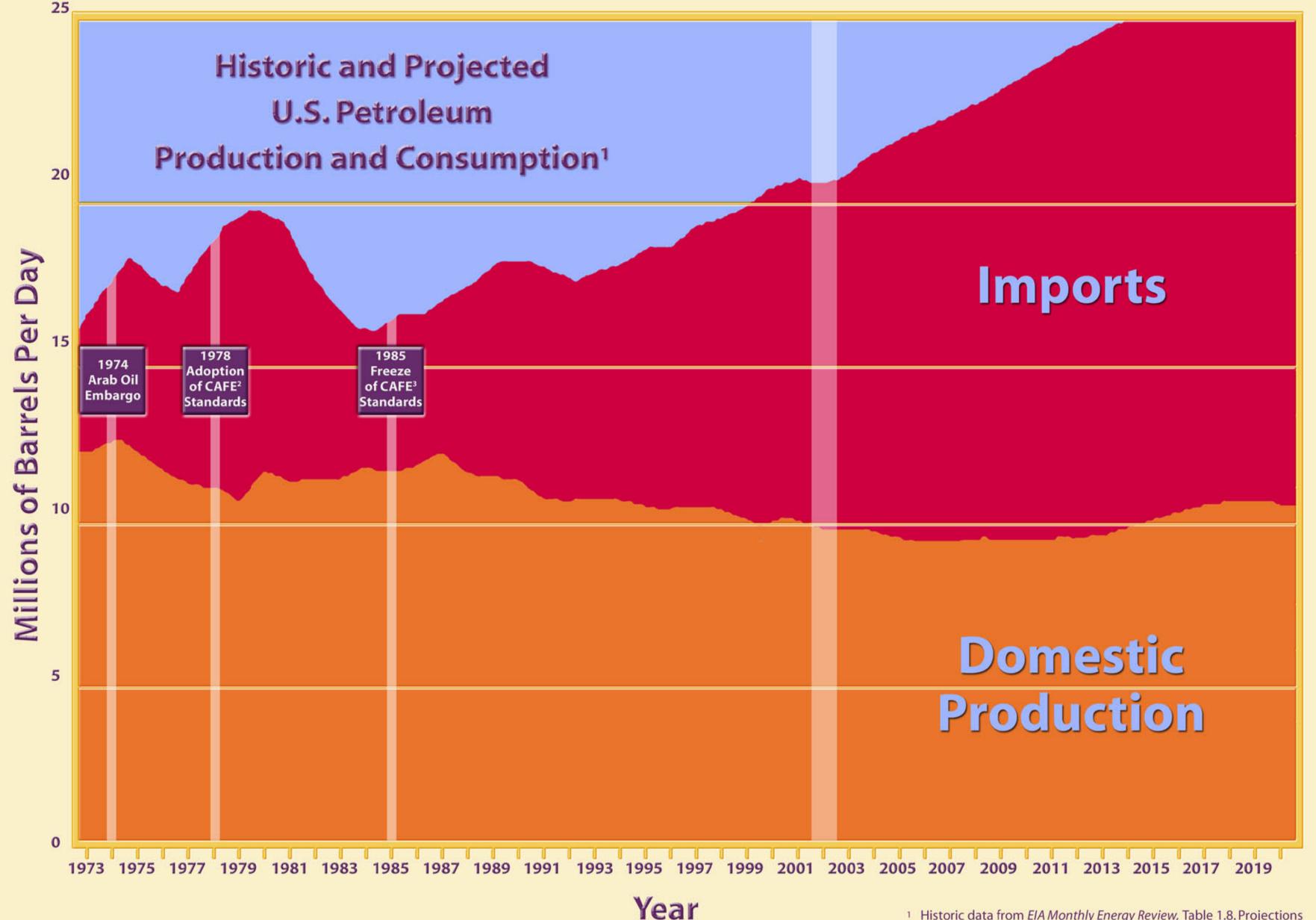
Grain Ethanol Use is **Expanding Rapidly**



—But Can Only Displace a Small Portion of the Gasoline Market... **Cellulosic Ethanol Can Substantially Increase that Portion**

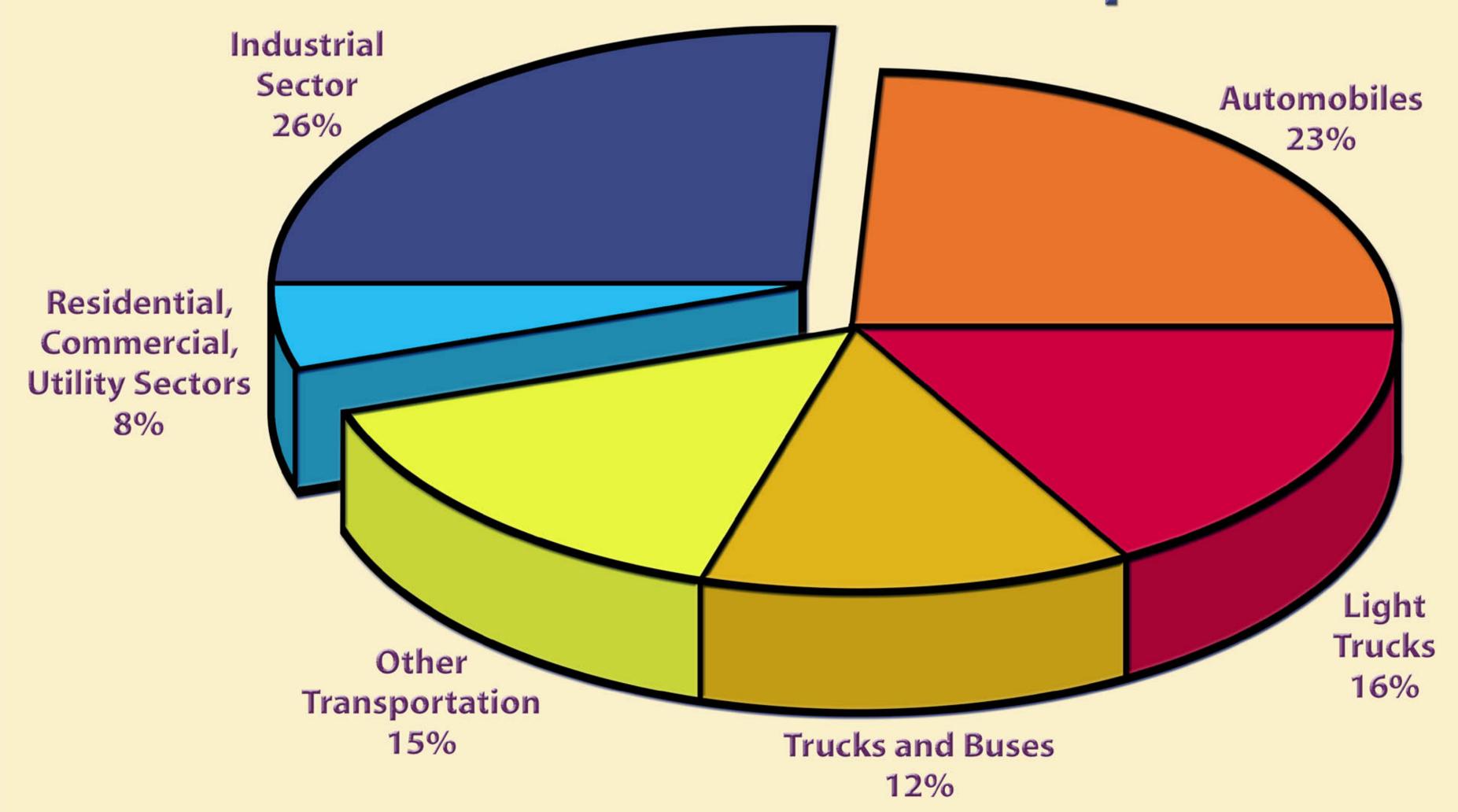


U.S. Dependence on Foreign Oil is Increasing



- ¹ Historic data from EIA Monthly Energy Review, Table 1.8. Projections
- from EIA Annual Energy Outlook, Table 11. ² From Energy Policy and Conservation Act of 1975.
- 3 27.5 mpg since 1985 model year for cars; 20.7 mpg since 1996 for light trucks.

Transportation is the Primary Cause 1999 U.S. Petroleum Consumption⁴



4 Data from Table 2.5 of the U.S. Department of Energy's Transportation Energy Data Book: Edition 21. Oak Ridge National Laboratory and Figure 5-12a EIA Annual Reivew.

Bioethanol Production and Use

-Uses Less Petroleum¹



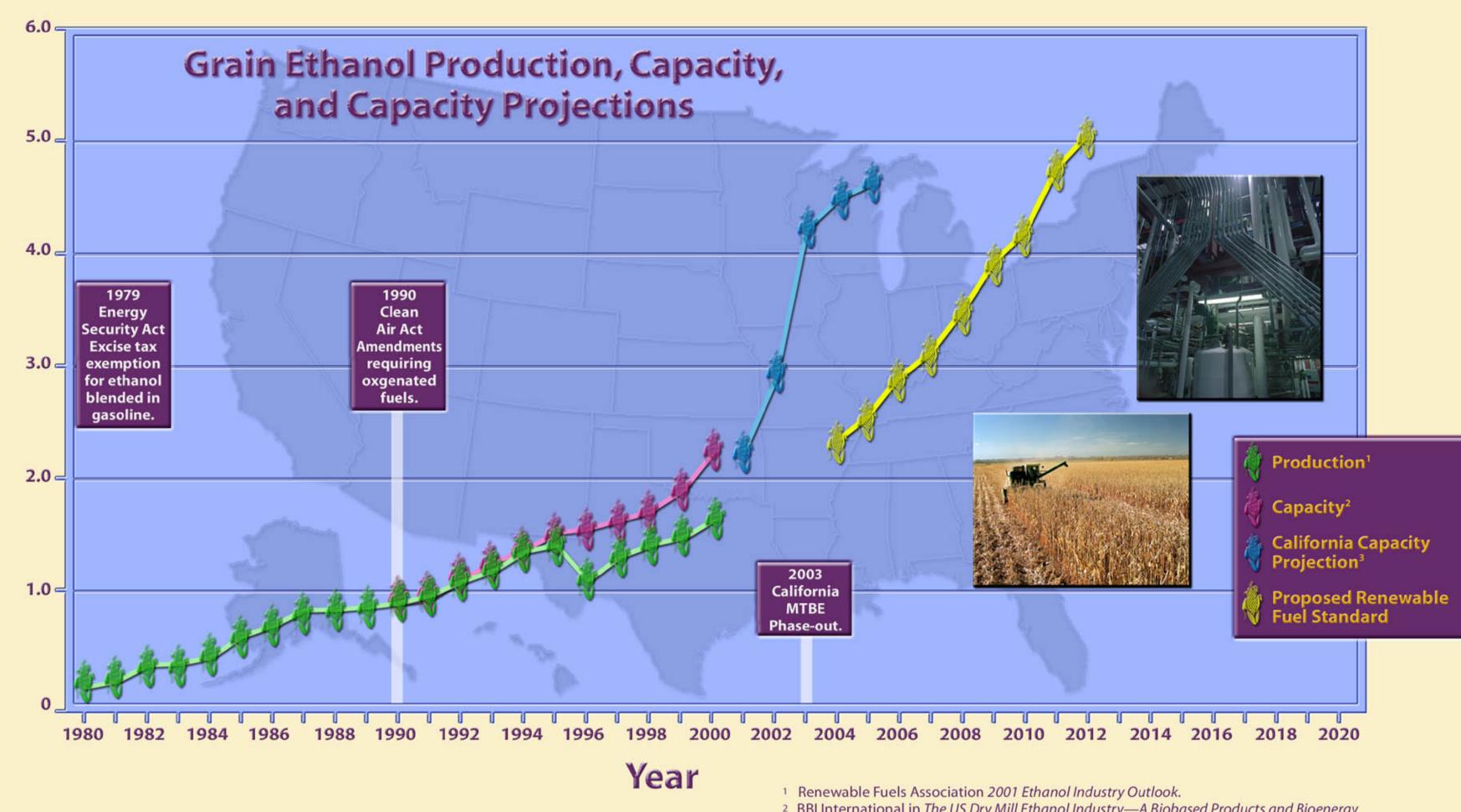
—Emits Less Greenhouse Gas'



Calculations taken from Table 8 and Figures 3 and 5 of "Effects of Fuel Ethanol Use On Fuel-Cycle Energy and Greenhouse Gas Emissions." 1999. Wang, Saricks, Santini. Argonne National Laboratory. ANL/ESD-38 (Near Future Cases for E-10 Use), except for corn stover ethanol which is taken from a forthcoming NREL life-cycle analysis.

Note: includes electrical generation from burning lignin residue, making negative use or emissions possible.

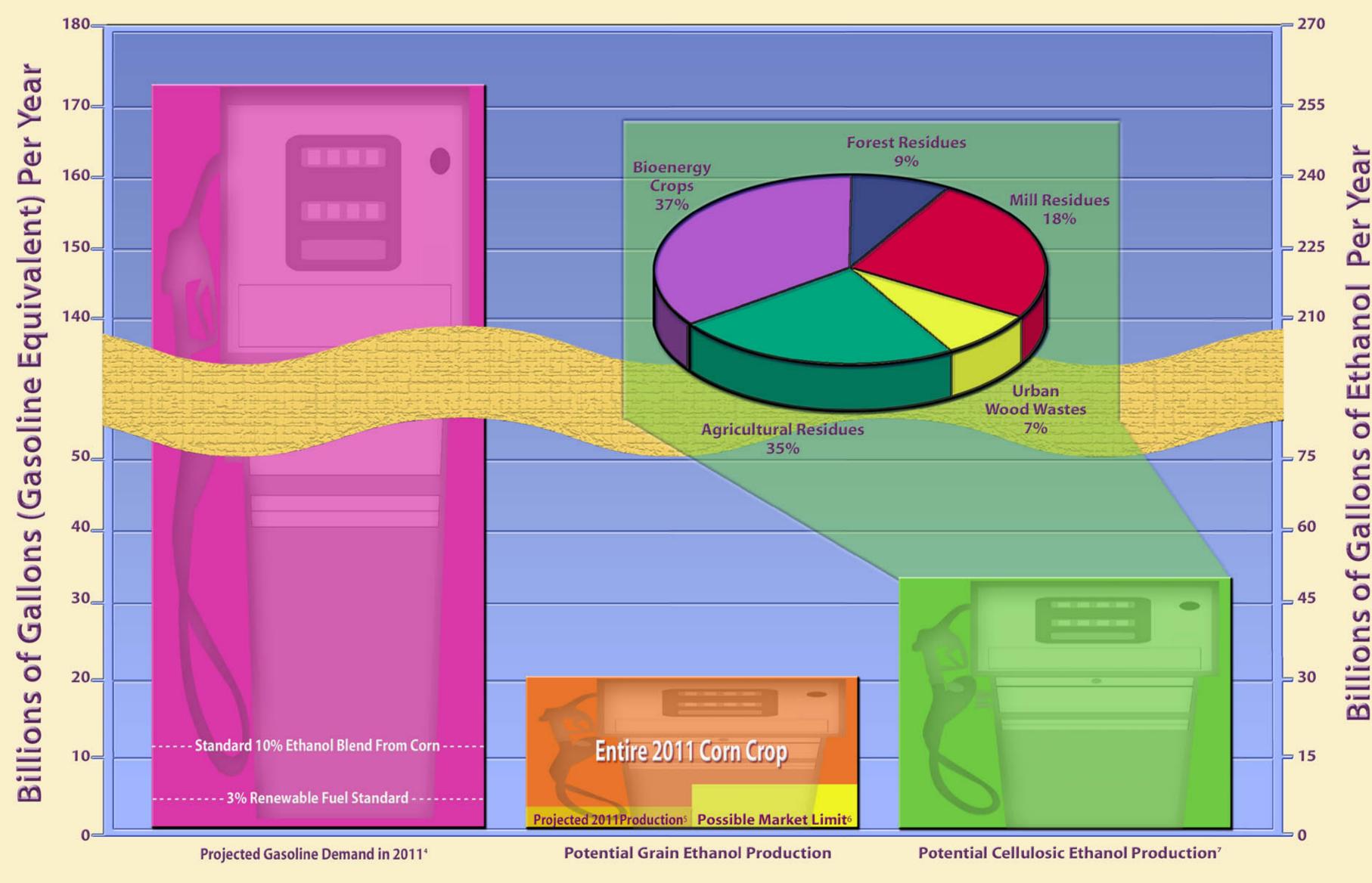
Grain Ethanol Use is Expanding Rapidly



Billons of Gallons Per Year

- ² BBI International in The US Dry Mill Ethanol Industry—A Biobased Products and Bioenergy
- Initiative Sucess Story.
- 3 California Energy Commission US Ethanol Industry Projection Capacity Outlook Update by 2001 Survey Results, July 18, 2002.

—But Can Only Displace a Small Portion of the Gasoline Market... **Cellulosic Ethanol Can Substantially** Increase that Portion



4 Table 2, EIA 2002 Annual Energy Outlook (19.94 Quads).

- 5 Projected 2011 corn grain use for ethanol production from Table 9, USDA Agriculture Baseline Projections to 2011, February 2002. 6 Estimated upper limit of ethanol production from corn, based on current technology and market conditions, principally ability
- to sell distillers dried grains; from BBI International, personal communication.
- 7 Biomass Feedstock Availability in the United States: 1999 State Level Analysis. M. Walsh, et.al.